

**Utah State
Fire Marshal's Office**

**Sprinkler
Technician II**

**(Dry Pipe, Deluge, Pre-Action,
Combined Dry Pipe-Pre-Action Sprinkler Systems
Fire Pumps & Water Storage Tanks)**

Certification Program

Task Book Assigned to:
Individual's Name, Company Name
Date Issued by State Fire Marshal's Office

The material contained in this book accurately defines the performance expected of the position for which it was developed. This task book is approved for use as a position qualification document in accordance with the instructions contained herein.

UTAH STATE FIRE MARSHAL
TASK BOOK for

SPRINKLER TECHNICIAN II

Task Books (TB) have been developed for this position to meet the requirements as established in Utah Code R710-5 as administered by the Utah State Fire Marshal's office. Each Task Book lists the performance requirements (tasks) for the specific position in a format that allows an applicant to be evaluated against written guidelines. Successful performance of all tasks, as observed and recorded by an evaluator, will result in a recommendation to the State Fire Marshal's Office that the applicant is eligible to be certified as a Technician II.

Evaluation and confirmation of the applicants performance of all the tasks may involve more than one evaluator. All bullet statements within a task which require an action (contain an action verb) must be demonstrated before that task can be signed off. A more detailed description of this process, definitions of terms, and responsibilities are included in NFPA 25.

The Company is responsible for:

- Selecting technician candidate that meet its needs and meet employment requirements.
- Ensuring that the technician candidate meets the training and experience requirements included in the prerequisites for this certification.
- Initiating Task Books to document task performance.
- Explaining to the technician candidate the purpose and processes of the Task Book as well as the applicants responsibilities.
- Providing opportunities for evaluation and/or making the technician candidate available for evaluation.
- Providing an evaluator for assignments.
- Tracking progress of the technician candidate.
- Confirming Task Book completion.
- Determining eligibility and recommendation for examination.

The Technician Candidate is responsible for:

- Reviewing and understanding instructions in the Task Book.
- Identifying desired objectives/goals.
- Providing background information to an evaluator.
- Satisfactorily demonstrating completion of all tasks for an assigned position.
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- Assuring the Evaluation Record is complete.

- Notifying company personnel when the Task Book is completed and providing a copy.
- Keeping the original Task Book in personal records.

The Evaluator is responsible for:

- 1- Understanding the Sprinkler Technician task book, examination and certification program.
- 2- Being qualified and proficient in the systems being evaluated.
- 3- Meeting with the technician candidate and determining past experience, current qualifications, and desired objectives/goals.
- 4- Reviewing tasks with the technician candidate.
- 5- Explaining to the technician candidate the evaluation procedures that will be utilized and which objectives may be attained.
- 6- Identifying tasks to be performed during the evaluation period.
- 7- Accurately evaluating and recording demonstrated performance of tasks. Satisfactory performance shall be documented by dating and initialing completion of the task.

The Final Evaluator is responsible for:

- 1- Signing the verification statement inside the front cover of the Task Book when all tasks have been initialed and if the technician candidate is recommended for examination.

EVALUATOR

DO NOT COMPLETE THIS UNLESS YOU ARE RECOMMENDING THE APPLICANT FOR
CERTIFICATION

VERIFICATION OF COMPLETED TASK BOOK FOR THE POSITION OF

Sprinkler Technician Level II

FINAL EVALUATOR'S VERIFICATION

I verify that all tasks have been performed and are documented with appropriate initials.

FINAL EVALUATOR'S SIGNATURE AND DATE

EVALUATOR'S PRINTED NAME, TITLE, BUSINESS NAME, AND PHONE NUMBER

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R710-5 Automatic Sprinkler System Inspection & Testing
Manipulative Skills Task Book

Technician Level II Tasks

Dry Pipe, Deluge, Preaction, Combined dry pipe-preaction, fire pumps and water storage tanks.

Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Dry Pipe System			
Determine if original installation drawings and calculations are on the premises as required by standards.			
Determine if previous year's inspection and testing records are on site as required by standards.			
Determine if occupancy has changed since the last inspection.			
Determine if the use or process of building has changed since the last inspection.			
Determine if storage configuration has changed since the last inspection.			
Determine if the building has been remodeled or changed since the last inspection.			
Determine if the system has been in continuous service since the last inspection			
Determine if proper notification has been given to AHJ, alarm company etc. before testing.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Determine location of system riser or control valve and if it meets standards.			
Determine if all identification signs are in place and legible.			
Determine what hazard is being protected.			
Determine if valves are properly supervised.			
Determine if water supply is adequate for system.			
Determine if system is pipe scheduled or hydraulically calculated.			
If hydraulically calculated is a hydraulic nameplate on the riser? Is it legible?			
Complete a visual inspection of the sprinklers from floor level.			
Verify sprinklers do not show signs of leakage.			
Verify sprinklers are free of corrosion.			
Verify sprinklers are free of foreign materials.			

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Verify sprinklers are free of paint.			
Verify sprinklers are free of physical damage.			
Verify sprinklers are in the proper orientation.			
Verify sprinklers are free from unacceptable obstructions to spray patterns.			
Verify the proper number of sprinklers and type in the head box.			
Verify a sprinkler wrench is available for each type of sprinkler.			
Complete a visual inspection of the pipe and fittings from floor level.			
Verify pipe and fittings are free of mechanical damage.			
Verify pipe and fittings are free from leakage.			
Verify pipe and fittings are free from corrosion.			
Verify pipe and fittings are free from misalignment.			

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Verify pipe and fittings are free from external loads by materials resetting on or hanging from the piping.			
Complete a visual inspection on the hangers and seismic bracing from floor level.			
Verify that hangers or seismic bracing is not loose or damaged. If so, replace or reattach.			
Verify gauges are in good condition.			
Verify alarm devices are free of physical damage.			
Verify sprinklers installed before 1920 are replaced.			
Verify when sprinklers have been in service for 50 years they have been tested or replaced. Test procedures shall be repeated at 10 year intervals.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Verify when fast response sprinklers have been in service for 20 years they have been tested or replaced. Test procedures shall be repeated at 10 year intervals.			
Verify solder-type sprinklers with temperature of 325°F have been tested at 5 year intervals.			
Verify when sprinklers have been in service for 75 years they have been tested or replaced. Test procedures shall be repeated at 5 year intervals.			
Verify that dry sprinklers that have been in service for 10 years have been tested or replaced. If maintained they shall be retested at 10 year intervals.			
Verify sprinklers in harsh environments, corrosive atmospheres or corrosive water supplies have been tested or replaced on a 5 year basis.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Verify gauges have been replaced or calibrated within the last 5 years. Calibration accurately within 3% of full scale.			
Verify before opening any test or drain valves there is adequate provisions for drainage.			
Operation of control valves from full open to full closed. How many turns did it take?			
If a Post Indicator Valve (PIV) is installed verify the rod has not become detached from the valve.			
Verify alarm device activation by opening the alarm by-pass connection.			
Verify water motor alarm is operating properly and free of any debris.			
Perform a proper main drain test and record the results.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
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Verify the main drain test complies within accepted variances from previous tests and original commissioning test.			
Verify internal inspection on dry valve has been completed annually unless tests indicate a greater frequency is necessary.			
Verify internal inspection on quick opening device has been completed annually unless tests indicate a greater frequency is necessary.			
On dry valves verify strainers, filters and restricted orifices are inspected internally every 5 years.			
Verify internal inspection on check valves have been completed every 5 years to verify all components operate correctly, move freely, and are in good condition.			
Verify the dry pipe valve is in a heated enclosure.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Verify priming water level.			
Verify low air pressure alarms.			
Verify operation of quick opening devices.			
Perform annual trip test on dry system.			
Perform full flow trip test on 3 year interval.			
Verify time water arrives at inspectors test. Is it within acceptable ranges?			
Verify the fire department connections are visible and accessible.			
Verify FDC couplings or swivels are not damaged and rotate smoothly.			
Verify FDC plugs or caps are in place and undamaged.			
Verify FDC gaskets are in place and in good condition.			
Verify FDC signs are in place and in good condition.			
Verify FDC check valve is not leaking.			
Verify automatic drain valve is in place and operating properly.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Verify the FDC clappers are in place and operating properly.			
Preaction System			
Verify internal inspection on deluge valve has been completed annually, or if external reset, at 5 years unless tests indicate a greater frequency is necessary.			
On deluge valves verify strainers, filters and restricted orifices are inspected internally every 5 years.			
Verify internal inspection on check valves have been completed every 5 years to verify all components operate correctly, move freely, and are in good condition.			
Verify the deluge valve is in a heated enclosure. A minimum of 40° F.			
Verify low temperature alarm, if installed, is operating correct.			
Verify priming water level.			

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Verify low air pressure alarms.			
Perform full flow trip test annually.			
Verify time water arrives at inspectors test. Is it within acceptable ranges?			
Verify air maintenance device, if provided, is functioning properly.			
Verify detection system is operating correctly.			
Verify internal inspection on dry valve has been completed annually unless tests indicate a greater frequency is necessary.			
Verify internal inspection on quick opening device has been completed annually unless tests indicate a greater frequency is necessary.			
On dry valves verify strainers, filters and restricted orifices are inspected internally every 5 years.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Verify internal inspection on check valves have been completed every 5 years to verify all components operate correctly, move freely, and are in good condition.			
Verify the dry pipe valve is in a heated enclosure.			
Verify priming water level.			
Verify low air pressure alarms.			
Verify operation of quick opening devices.			
Perform annual trip test on dry system.			
Perform full flow trip test on 3 year interval.			
Verify time water arrives at inspectors test. Is it within acceptable ranges?			

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Fire Pumps			
Verify pump house condition. Is heat adequate, not less than 40° F or 70° F for diesel engines without engine heaters.			
Is pump house cooling adequate? If temperature is above 77° F verify diesel engine is properly derated.			
Verify pump house ventilating louvers are free to operate.			
Verify pump suction, discharge and bypass valves are fully open and properly supervised.			
Verify piping is free from leaks.			
Verify suction line pressure gauge reading is normal.			
Verify system line pressure gauge is reading normal.			
Verify suction reservoir, if equipped is full.			
Verify wet pit suction screens, if equipped are unobstructed and in place.			
Verify controller pilot light is illuminated.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Verify transfer switch normal pilot light is illuminated.			
Verify isolating switch is closed.			
Verify reverse phase alarm pilot light is off or normal phase rotation pilot light is on.			
Verify oil level in vertical motor sight glass is normal.			
Verify fuel tank on diesel engines is at least two-thirds full.			
Verify controller selector switch is in the auto position.			
Verify batteries voltage readings are normal.			
Verify batteries charging current readings are normal.			
Verify batteries pilot lights are on or battery failure pilot lights are off.			
Verify all alarm pilot lights are off.			
Verify engine running time meter is operating.			
Verify oil level in right angle gear drive is normal.			
Verify crankcase oil level is normal.			

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Verify cooling water level is normal.			
Verify electrolyte level in batteries is normal.			
Verify battery terminals are free from corrosion.			
Verify water jacket heater is operating.			
Perform a pump run test by starting pump automatically. Electric pump to run a minimum of 10 minutes and diesel a minimum of 30 minutes.			
During run test record suction and discharge gauge readings.			
Adjust packing gland nuts if necessary to provide approximately 1 drop per second.			
Check for unusual noise and vibration.			
Verify packing boxes, bearings, or pump casing is not overheating.			
Record the pump starting pressure and verify settings have not been changed.			
On electric pumps record the time for motor to accelerate to full speed.			

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If a reduced voltage start record the time the controller is on the first step.			
Verify the time the pump runs before shutting down on automatic stop controllers.			
On diesel drivers record the time for engine to crank.			
Record the time for engine to reach running speed.			
Record the engine oil pressure, speed indicator, water and oil temperature.			
Verify the heat exchanger for cooling water flow is operating properly.			
Verify proper test equipment is provided and calibrated for the test to be performed.			
Verify flow method used is correct.			
If using hose stream discharge verify adequate drainage before flowing water.			
Verify proper jockey pump stop point setting.			

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Verify proper jockey pump start point setting.			
Verify proper fire pump start point setting. If more than one pump make sure each additional pump is set correctly.			
Verify the circulation relief valve is operating correctly during churn.			
Verify the pressure relief valve (if installed) for proper operation and setting.			
Verify the annual test is conducted under minimum, rated, and peak flows.			
At each flow record the electric motor voltage and current (all lines).			
Record the pump speed in rpm at each setting.			
Record the simultaneous readings of pump suction and discharge pressures along with pump discharge flow at each setting.			

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Verify operation of pressure relief valve during each flow condition. If relief valve is opening it will affect test results.			
For systems having an automatic transfer switch simulate a power failure while the pump is operating at peak load.			
Verify the transfer switch transfers power to the alternate source.			
Verify the pump continues to operate at peak load.			
Remove the power failure condition and verify that after a time delay, the pump is reconnected to the normal power source.			
Verify all alarm conditions at local and remote annunciators function properly.			
Upon completion of the water flow verify the suction screen condition.			
Verify parallel and angular alignment of the pump and driver.			

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Tasks	Explain in detail how task was performed and why.	Business Address where task was completed	Evaluator Initial, Certification #, and date upon completion of task
Verify all control valves have been operated and sealed in the proper position.			
Plot the test results and verify they meet the initial unadjusted field acceptance test curve or nameplate. Degradation in excess of 5% shall not be acceptable.			
Water Tanks			
Verify exterior condition of water storage tanks. No loose scale, leaky seams or rivets.			
Verify ladders on water storage tanks are stable and free of rust.			
Verify sway bracing on elevated storage tanks is stable and free of rust.			
Verify the roofs on water storage tanks are stable and free of rust.			
Verify the condition of the paint on the exterior of the tank is satisfactory.			
Verify elevated water storage tank columns and pits are free of dirt, rubbish and trash.			

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Verify in rubberized fabric tanks, the drain outlet has no leaks.			
Verify in rubberized fabric tanks the fabric is not worn.			
Verify in rubberized fabric tanks the outer protective paint has no oxidation or weather checking.			
Verify the interior of pressure tanks has been inspected by a qualified pressure-vessel inspector.			
Verify the heating system is operating properly and maintaining a minimum temperature of 40° F.			
Verify the hoops and grillages on wood water storage tanks are satisfactory.			
Verify expansion joints show no signs of stress, rust or corrosion.			
Verify the 3 year inspection on pressure tanks and steel tanks with no corrosion protection show no signs of rust, corrosion or collection of debris.			

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Verify on 5 year inspection tank interior shows no signs of rust, corrosion or collection of debris.			
Verify temperature alarms operate properly.			
Verify high temperature limit switches operate properly.			
Verify water level alarms operate properly.			
Verify proper operation of all control valves.			
Verify pressure tanks have the proper air pressure and if supervised, the supervision is working correctly.			
Verify the anti-vortex plate is free of deterioration or blockage.			
Verify level indicators have been tested every 5 years for accuracy and freedom of movement.			